TRANSLATION OF THE OFFICIAL ACTION

Docket: 97416

Mailing No. 203407
Mailed: January 26, 1999

Patent Application No. 138944/1997
Drafted: December 24, 1998
Examiner: Hideo KAWAMATA
Attorney(s): Hisao OKUYAMA and three others
Applicable provisions: Section 29 (2) of the Patent Law

This patent application is deemed to be rejected for the reason(s) set forth below. If any argument is to be presented, an Argument should be submitted within three months from the mailing date of this action. (Translator's note: headings have been added for ease of understanding.)

REASONS

[LACK OF INVENTIVE STEP] The present invention of this application claimed in the claims pointed out below is unpatentable under the provisions of Section 29(2) of Patent Law, since the invention could easily be thought of by anyone who has general knowledge in this art field before the filing, based on the invention described in the below-mentioned publication(s) which was/were distributed in Japan or in a foreign country before the filing date.

REMARKS

(1) Japanese Provisional Publication No. 63-99558
See Fig.5(b) in particular.

(2) Japanese Provisional Publication No. 62-76753
See Fig.4 for the vertical positioning of semiconductor chips.

Continued...

Record of the Prior Art Search

Searched filed: IPC 6th edition H01L25/00

Prior Art: Japanese Provisional Utility Model Publication No. 3-109351

The above searched Prior Art has not been relied on to the reject of the present application.

(19) JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: 63099558 A

(43) Date of publication of application: 30.04.88

(51) Int. Cl H01L 25/00
H05K 1/14

(21) Application number: 61245822

(22) Date of filing: 15.10.86

(71) Applicant: MITSUBISHI ELECTRIC CORP

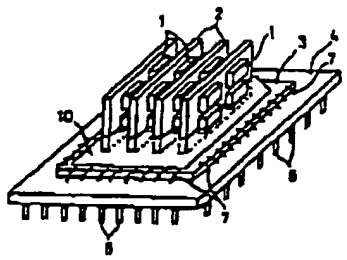
(72) Inventor: YOSHIDA MIYOSHI

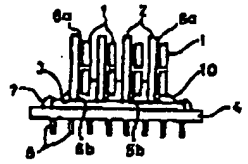
(54) SEMICONDUCTOR DEVICE

(57) Abstract:

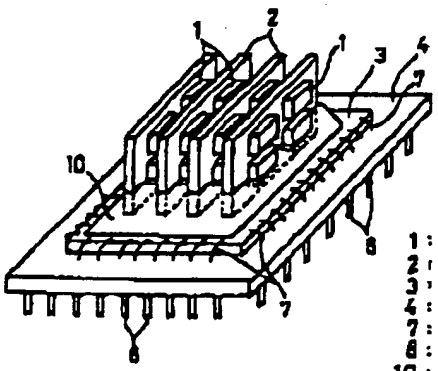
PURPOSE: To achieve the implementation of a large scale system without decreasing reliability, by forming an insulating coating material using an insulating bonding agent in a space formed by an insulating substrate and a cap body so as to cover first wiring boards and a second wiring board.

CONSTITUTION: In a semiconductor device, an insulating bonding agent is filled so as to cover the main surface of a second wiring board 3, parts of first wiring boards 2 and parts of semiconductor chips, and the agent is hardened. Thus an insulating coating material 10 is formed. Because of the insulating property, electrodes 6a and 6b are not short-circuited, and electric functions are not impaired. The contact area between the first wiring boards 2 and the second wiring board 3 is increased. Strength between both wiring boards 2 and 3 becomes large owing to the adhesive property. A characteristic, which is resistant to mechanical shocks such as vibration, can be obtained. Even if the number of electrodes arranged between the first wiring boards 2 and the second wiring board 3 is increased, the mechanical connecting strength between the boards 2 and 3 is high, and reliability against mechanical shocks such as vibration is high. Therefore, the semiconductor device having a large scale system can be obtained.



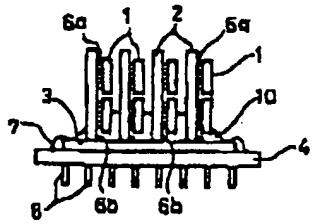


第 1 図

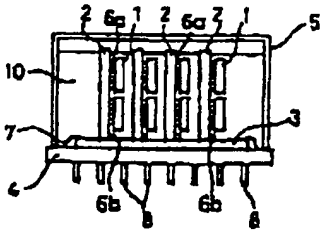


1：半導体チップ
2：マ1配線基板
3：マ2配線基板
4：絶縁基板
7：ワイヤ
8：電極
10：絶縁性樹脂

第 2 図

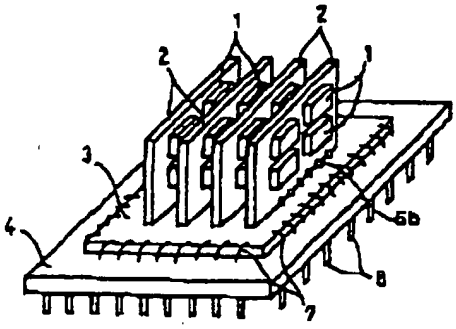


第 3 図



5：基体

第 4 図



第 5 図